

REMARKS

Claims 1-26 are pending in the application. Reconsideration and allowance of claims 1-26 in light of the amendments and arguments herein are respectfully requested.

Prior Art Rejections

Claims 1-26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over US patent number 5,483,827 to Kulka ("Kulka") in view of US patent number 3,806,905 to Strenglein ("Strenglein"). Reconsideration of this rejection is respectfully requested.

The present invention defined by claims 1-26 uses a unique combination to reduce or eliminate crosstalk in a remote tire pressure monitoring system. One aspect of that uniqueness is the use of the relative frequencies chosen for communication in the system. As defined by claim 1, for example, only "a relatively low frequency signal" is transmitted to a tire monitor and a "relatively high frequency signal" is used to convey data from the tire monitor. Independent claims 7, 12, 16 and 19 each contain similar limitations. Each of these claims define different aspects of the disclosed subject matter, but each has the benefit of reducing crosstalk in the system or among systems, such as in adjacent cars in factory.

Kulka lacks this benefit. Kulka discloses an implantable tire monitor that may be activated by an interrogator, causing it to transmit data back to the interrogator. The interrogator receives the transmitted data and either stores the received data or retransmits the data to an external host computer for analysis (column 3, line 33-54).

Kulka fails to disclose "using a relatively low frequency signal having a frequency below 3 MHz" and "transmitting a relatively high frequency signal having a frequency above 3 MHz" as recited by claim 1. Kulka does disclose "separate high and low frequency **data rate transmissions** may be provided by suitable high frequency and low frequency **data rate circuits 90 and 92**. For example, the **high frequency rate** is 38.15 Mchip/second and the **low rate** is 9.538 Mchip/second" (*emphasis added*). Thus,

rather than transmitting at relatively high and relatively low frequencies as required by, for example, claim 1, Kulka actually transmits at high and low data rates. In fact, Kulka expressly states that the same frequency band is used for all communications, column 5, lines 58-63. Thus, the crosstalk reducing benefits of the invention defined by claims 1-26 are simply not available from Kulka.

Strenglein lacks this benefit as well. The system of Strenglein requires both a high frequency signal and a low frequency signal applied to the tire monitor, transducer 1 of Strenglein (col. 7, lines 21-27), with high frequency return transmission (col. 4, lines 26-28, space path 104).

Strenglein discloses a tire monitor system including a transducer 1 mounted at each tire of a vehicle and a transmitter receiver system 150. Operation of the Strenglein system is explained at column 7, lines 56, making reference to Strenglein FIG. 4. Strenglein's Transducer 1 is interrogated by directing high carrier frequency energy from antenna 53 toward antenna 9. At the same time, low frequency energy from inductance antenna 67 is directed toward the low frequency transducer inductive antenna 16.

The transducer 1 comprises a microwave or high frequency antenna 9 capable of receiving a re-radiating part of the signal generated in carrier source 51, a rectifying diode 17, inductive antenna or pick up coil 16 capable of being excited by transmissions over path 22, and a switch 14 whose open or closed state is the basic information to be yielded by the transducer 1. If the tire pressure is normal, the switch 14 will be open, contacting unused contact 15 in FIG. 4. If the tire pressure is low the switch 14 will be closed contacting active contact 15a.

If switch 14 engages the active contact 15a, both the high and low frequency signals are impressed across the diode 17. Diode 17 behaves as a load in the microwave circuit of the transducer, a load which varies in impedance at a rate determined by the low frequency signal excited across the inductive antenna 67. Consequently, the amplitude of the microwave signal re-radiated by antenna 9 along paths 57 and 58 varies at the rate of the low frequency signal. On the other hand, if switch 14 is contacting the unused contact 15, the apparent reflectivity of the transducer

antenna 9 remains substantially constant. In that case, there is no internal path for the flow of currents in the transducer 1.

Accordingly, in the system of Strenglein, both a high frequency signal and a low frequency signal must be impressed on the transducer 1 for proper operation. In contrast claim 1 requires only "using a relatively low frequency signal having a frequency below 3 MHz to energize a secondary coil of a tire monitor." Other independent claims include similar limitations that are missing from Strenglein and Kulka, taken alone or in combination. The presently claimed invention provides an important advantage over Strenglein's system. As noted in the present application, prior art systems including Strenglein's may be subject to interference or crosstalk. This is especially true in a factory where many tire monitors are being assembled with tires and vehicles (paragraph [0006]). In a system according to the present invention defined by claims 1-26, only a low frequency inquiry or activation signal is used, reducing the likelihood of interference or crosstalk.

Accordingly, since claims 1-26 recite limitations nowhere shown in Kulka or Strenglein, these references can not render these claims unpatentable. Withdrawal of the 35 U.S.C. § 103(a) rejection of claims 1-26 and allowance of these claims are respectfully requested.

Double Patenting Rejection

Claims 1-26 stand rejected under the doctrine of obviousness type double patenting as being unpatentable over claims 1-18 of U.S. patent number 6,710,708. According to the office action, "the conflicting claims are not identical but are not patentably distinct from each other because claim 17 of the patent teaches the relative low frequency transmission and relatively high frequency reception by the exciter or transmission by a secondary coil." U.S. patent number 6,710,708 issued from the parent of the present application.

Reconsideration and withdrawal of this rejection are respectfully requested. The present application with the present claims was filed as a result of a restriction requirement issued by the examiner in the parent application. Applicant should not be

penalized by having to overcome a restriction requirement in the present application because the examiner of the parent application determined that the identified claim groups of that application identified "separate and distinct" inventions, one of which is now being claimed. It is respectfully submitted that the claims of the present application continue to be independent and distinct from the other groups identified by the examiner in the parent application, and that therefore the present restriction requirement should be withdrawn.

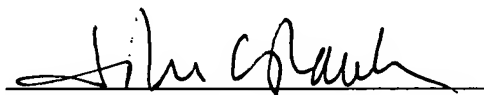
Nevertheless, if the double patenting rejection is maintained, applicant stands ready to submit a terminal disclaimer in obviation of this rejection.

Objection to the Specification

The disclosure stands objected to. The office action has required that the serial number of the parent application be updated to recite the patent number of the granted patent. The specification has been amended to overcome this rejection, and withdrawal of this rejection is respectfully requested.

With this response, the application is believed to be in condition for allowance. Should the examiner deem a telephone conference to be of assistance in advancing the application to allowance, the examiner is invited to call the undersigned attorney at the telephone number below.

Respectfully submitted,



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